

APPLICATION
FOR
UNITED STATES OF AMERICA

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SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

Be it known that I,

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have invented certain improvements in:

“SPORTS SHOE PARTICULARLY FOR MOTOCROSS”

of which the following description in connection with the accompanying drawings is a specification, like reference characters on the drawings indicating like parts in the several figures.

BACKGROUND OF THE INVENTION

The present invention relates to a sports shoe, particularly for motocross.

As an overview of the various problems related to sports footwear, it is noted that currently it is known to manufacture sports shoes, such as for
5 example skating shoes, which are constituted by a rigid shell, which is adapted to contain a soft innerboot for the user's foot and to which a likewise rigid quarter is articulated by means of studs, rivets or other fastening systems arranged at the malleolar region.

Such known types of sports shoe therefore have two rigid components
10 that are mutually articulated in order to allow the flexing of the leg with respect to the foot, the rigidity of the shell and of the quarter allowing the transmission of forces.

However, these known types of sports shoe, while having the above-mentioned advantages, also have drawbacks.

15 For example, in skiing the knee is very active in transmitting forces, while the ankle remains very static within the relatively rigid structure constituted by the shell and the quarter, which are in any case articulated in a point that is adjacent to the malleolar region.

In dynamic terms, this is correct; however, in terms of fit it is not possible
20 to achieve for all users an optimum placement of the seats for the malleoli due to the preset articulation point constituted by the studs.

In skating, the ankle has a much more active role in force generation: the consequent static condition of the ankle is a disadvantage, but the ankle must be protected against the torques that might be generated during practice of
25 the sport on the part of less expert skaters.

The current structure of the shoe for the skate is very similar to the structure of a ski boot and protects the ankle excellently against torques, but it prevents the application of maximum efficiency in the movements that allow advanced sports practice.

30 For this purpose, it is known that expert speed skaters and roller- and ice-

hockey players wear skating shoes that are provided with a soft leather shoe that leaves the ankles free to work by controlled yielding.

US-5778566 is also known as a partial solution to the above-mentioned drawbacks and relates to a sports shoe that can be used to perform several sports, such as roller skating and in-line skating, ice skating, hockey, ski-
5 mountaineering, cross-country skiing, snowboarding, basketball or gymnastics.

This shoe comprises a soft innerboot that has a cuff that partially wraps around the leg of the user and with which a semirigid collar is
10 advantageously associated.

Such collar is provided laterally with guiding seats for tabs that protrude from a semirigid body, which is monolithically coupled to the innerboot proximate to the heel and is engaged with the collar at the rear.

Differently from the preceding known types of shoe, in the resulting shoe
15 the lack of rivets or studs at the malleolar region and most of all the free connection in that point between the tabs and the collar allows the foot of the user to perform both a controlled longitudinal movement with respect to the shoe and a lateral movement of controlled extent with respect to the shoe.

Although this solution eliminates several drawbacks that recur in known
20 types of shoe, it has the main drawback of allowing the foot of the user to perform an excessively limited flexing motion, particularly in situations that require considerable combined rotary and translational motions on the part of the foot-ankle system in order to achieve its most appropriate relative arrangements, such as for example in the case of shoes for motorcycling,
25 motocross and racing.

Another drawback that can be observed in this type of known solution is that the resulting shoe has a substantially non-optimum ratio between longitudinal and lateral rigidity and yielding.

SUMMARY OF THE INVENTION

30 The aim of the present invention is to solve the above-noted problems,

eliminating the drawbacks of the cited prior art, by providing a sports shoe that allows to utilize a plurality of degrees of freedom to move the foot while keeping the foot, together with the ankle, effectively supported and protected, particularly for shoes for motorcycling.

5 Within this aim, an object of the invention is to provide a shoe that is particularly comfortable and adaptable to the various shapes of the foot, particularly as regards the portion of the shoe that is designed to make direct contact with the malleoli.

10 Another object is to provide a sports shoe that has an optimum ratio between longitudinal and lateral rigidity and yielding, in order to achieve optimum performance even at a non-advanced user level.

A further object is to provide, together with the characteristics noted above, a shoe whose rigidity allows optimum protection of the foot of the user against any torques generated during sports practice.

15 A still further object is to provide a shoe that is reliable and safe in use, can be obtained with low manufacturing costs and can be manufactured with conventional and known machines and equipment.

20 This aim and these and other objects that will become better apparent hereinafter are achieved by a sports shoe, particularly for motocross, which comprises a soft upper that is provided with a cuff and with a rear counter which are semirigid and are separately connected to said upper, characterized in that it comprises an additional semirigid element that is connected to said upper in an intermediate region between said quarter and said counter, said additional semirigid element being provided, at the rear
25 and/or laterally, with at least one first tab and at least one second tab for sliding engagement in guiding means formed in said quarter and said counter.

BRIEF DESCRIPTION OF THE DRAWINGS

30 Further characteristics and advantages of the invention will become better apparent from the following detailed description of a particular embodiment

thereof, illustrated by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a first side view of the invention;

Figure 2 is a second side view of the invention;

5 Figure 3 is a front view of the invention;

Figure 4 is a rear view of the invention;

Figure 5 is a sectional view of the invention, taken along the line V-V of Figure 1;

10 Figure 6 is a sectional view of the invention, taken along the line VI-VI of Figure 5.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the examples of embodiment that follow, individual characteristics, given in relation to specific examples, may actually be interchanged with other different characteristics that exist in other examples of embodiment.

15 Moreover, it is noted that anything found to be already known during the patenting process is understood not to be claimed and to be the subject of a disclaimer.

With reference to the figures, the reference numeral 1 designates a sports shoe, particularly for motocross, which comprises an upper 2, preferably
20 made of cut or injection-molded soft material, optionally preformed by injection, sewn or joined by thermal bonding according to the intended shoe configuration.

A sole 3 provided with a heel 4 at the rear is associated with the upper in a lower region.

25 In the upper 2, which in the particular embodiment shown is shaped like a boot, the reference numeral 5 designates a first region that is located at the toe and the reference numeral 6 designates, at the opposite end, a second region located at the heel.

A preferably semirigid cuff 7 is monolithically associated or formed at
30 the rear of the upper 2 and by being located above the region that

corresponds to the malleoli of the foot it partially wraps around the lower part of the user's leg.

A semirigid counter 12 is associated or monolithically coupled to the upper 2 at the second region 6 and wraps around the entire heel of the user, while in an intermediate region between said counter and the overlying cuff 7 an additional semirigid element 13 is associated with the upper 2 or rigidly coupled thereto; said additional semirigid element is essentially cross-shaped and is arranged so that it has first wings that are approximately vertical and are arranged to the rear of the upper and longitudinally thereto and second wings that are approximately transverse to the upper 2, so as to wrap around the adjacent region of the leg at the rear and laterally wrap around the malleoli.

The additional semirigid element 13 therefore has, at the rear, at least one first upper tab 8, which protrudes approximately vertically toward the overlying cuff 7, and at least one second lower tab 16, which protrudes approximately vertically toward the underlying counter 12; the tabs 8,16 constitute the first wings.

Said at least one first tab and at least one second tab slidably and freely engage first guiding means, which are formed in said cuff and said counter and are constituted by first receptacles 22 and second receptacles 23 that are formed respectively advantageously at, or crosswise, the thickness of the cuff 7 and the counter 12, i.e. at the lower and, respectively, upper border edges thereof.

The additional semirigid element 13 has advantageously, at at least one of the first tips 24 of the second wings, at least one approximately elliptical first reinforcement 15 on the outer side of the foot, suitable to constitute a protection region for the malleoli of the foot of the user.

At least one third upper tab 25 and at least one fourth lower tab 27 protrude from said at least one first reinforcement 15; said upper tab protrudes approximately vertically toward the overlying third lateral region

26 of the cuff 7 and said lower fourth tab protrudes approximately vertically toward the underlying fourth lateral region 28 of the counter 12.

Advantageously, the third tab 25 protrudes slightly obliquely along an axis A that forms an acute angle α , considering a counterclockwise rotation as positive, with respect to an axis B that is perpendicular to the ground and passes through the first region of the malleoli.

Advantageously, the fourth tab 27 also protrudes slightly obliquely along an inclined axis A that forms an acute angle α , considering a counterclockwise rotation as positive, with respect to a vertical axis B that is perpendicular to the ground and passes through the first region of the malleoli.

Said at least one third tab 25 and at least one fourth tab 27 engage slidably and freely with second guiding means formed in said cuff and said counter, said guiding means being constituted by third receptacles 29 and fourth receptacles 30 formed respectively advantageously at, or crosswise, the thickness of the cuff 7 and the counter 12, i.e. at the lower and, respectively, upper border edges thereof.

The use of the invention entails that the positioning distances between the counter 12, the semirigid element 13 and the cuff 7 allow the sliding engagement of the first, second, third and fourth tabs in the first, second, third and fourth receptacles, so as to allow the foot of the user to perform a controlled forward or backward flexing motion, a controlled lateral left or right movement, or a combination thereof.

It has thus been found that the invention has achieved the intended aim and objects, since it allows the user to maintain a high level of fit, to perform correct and guided movement of the system formed by the foot and the ankle particularly during the sports practice of motocross, and at the same time to ensure effective support and protection of the foot and of the ankle.

The invention in fact has an optimum ratio between lateral and longitudinal rigidity and yielding, obtaining optimum performance even at a

non-advanced user level.

The invention is of course susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

Accordingly, the third and fourth tabs and the respective third and fourth
5 receptacles can be provided also at the inner side of the foot.

The materials used, as well as the dimensions that constitute the individual components of the invention, may of course be the most pertinent according to specific requirements.

The various means for performing certain different functions need not
10 certainly coexist only in the illustrated embodiment but can be present per se in many embodiments, including ones that are not illustrated.

The disclosures in Italian Patent Application No. TV2002A000106 from which this application claims priority are incorporated herein by reference.